

Thermodynamics of heavy Quarkonia using the SUSYQM method in the presence of baryonic chemical potential

Wednesday 15 January 2025 14:59 (7 minutes)

In this study, we employ medium-modified Cornell (MMC) potential to investigate the thermodynamic properties of ground states of heavy quarkonium systems in N-dimensional space through the Supersymmetric Quantum Mechanics (SUSYQM) approach. To account for the effects of baryonic chemical potential on quarkonia, we incorporate the quasi-particle Debye mass. The Schrödinger equation is solved to obtain the energy eigenvalues of the system. Using the derived partition function, we calculate essential thermodynamic properties such as internal energy, entropy, and free energy, examining their behavior under varying temperature and dimensionality number.

Author: SHARMA, Rishabh (Department of Physics, Central University of Jharkhand, Ranchi, India- 835-222)

Co-author: Dr AGOTIYA, Vineet Kumar

Presenter: SHARMA, Rishabh (Department of Physics, Central University of Jharkhand, Ranchi, India- 835-222)

Session Classification: Parallel D

Track Classification: 3. Hard probes - jets and electromagnetic probes, heavy flavor, quarkonia